

الجامعة الأهلية  
AHLIA UNIVERSITY  
BAHRAIN

# The Fourth Annual **RESEARCH FORUM**

## **Abstract Book**

28 - 29 March 2016

Hosted by the College of  
Graduate Studies and Research



His Royal Highness Prince  
**Khalifa Bin Salman Al Khalifa**  
Prime Minister



His Majesty King  
**Hamad Bin Isa Al Khalifa**  
King of the Kingdom of Bahrain



His Royal Highness Prince  
**Salman Bin Hamad Al Khalifa**  
Crown Prince  
Deputy Supreme Commander  
and First Deputy Prime Minister

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## PROGRAMME

### DAY ONE: 28 March 2016

- 09:30 - 09:40 **Opening Address**  
*Professor Abdulla Al Hawaj*  
*Founding President, Ahlia University*
- 09:40 - 09:50 **Ahlia University's Research Strategy**  
*Professor Mansoor Alaali*  
*President, Ahlia University*
- 09:50 - 10:00 **Research Forum: Goals and focus**  
*Dr María del Mar de Fez Laso*  
*Dean, College of Graduate Studies and Research*
- 10:00 - 10:25 **Energy for the future: The year 2030 and beyond**  
*Professor Shawqi Al Dallal*  
*President's Adviser for Future Studies & Innovation*
- 10:25 - 11:00 **Break**
- 11:00 - 11:20 **Impact of smart phone use on the musculoskeletal system: A preliminary study in the Ahlia University population**  
*Dr Dalia Mohamed Shewitta, College of Medical & Health Sciences*
- 11:20 - 11:40 **Integrated reporting: New framework for corporate reporting**  
*Dr Gagan Kukreja, College of Business & Finance*
- 11:40 - 12:00 **Testing the reliability and validity of a proposed scale**  
*Dr Said Al-Hajjar, College of Arts, Science & Education*
- 12:00 - 12:30 **Break**
- 12:30 - 12:50 **Teacher professionalism**  
*Dr Mohamed Hasan Mohamed, College of Arts, Science & Education*
- 12:50 - 13:10 **Compose Walsh Sequences**  
*Dr Ahmad Al Cheikha, College of Arts, Science & Education*
- 13:10 - 13:30 **Developing a fuzzy database system for heart disease diagnosis**  
*Ms Jenan Moosa Hasan, College of Information Technology*
- 13:30 - 14:20 **Poster Session and Book Exhibition**
- 14:20 - 15:20 **Lunch**
- 15:20 - 15:40 **Arabian intellectuals - Their role and meaning**  
*Dr Ismail Mseer, College of Arts, Science & Education*
- 15:40 - 16:00 **A robust authentication scheme using smart mobile devices**  
*Dr Hasan Kadhem, College of Information Technology*
- 16:20 - 16:40 **Appreciation to Contributors**

### DAY TWO: 29 March 2016

- 09:30 - 09:40 **Opening Address**  
*Dr María del Mar de Fez Laso*  
*Dean, College of Graduate Studies and Research*
- 09:40 - 10:05 **Keynote Speech: Environmental management and sustainable development**  
*Prof. Amer Al-Roubaie, Adviser for Capacity Building & Academic Collaborations*
- 10:05 - 10:25 **Financial deepening**  
*Dr Abdullah Al-Hassan, College of Business & Finance*
- 10:25 - 10:45 **Employing sound bites in the TV news: A comparative study of the media agenda and the use of sound bites in Newscasts on Al Jazeera and Al Arabia regarding political events in Tunisia in 2011**  
*Ms Maryam Al Sherooqi, Master in Mass Communication & PR: Recent graduate*
- 10:45 - 11:05 **Medical decision making aided by physicians' leadership: Mediated by social capital in a social networking environment**  
*Dr Anjum Razzaque, College of Business & Finance*
- 11:05 - 12:00 **Break**
- 12:00 - 12:20 **Establishing Bahrain as a competitive medical tourism hub in the region: A directive study**  
*Mr Ahmed Ebrahim, Master of Business Administration: Recent Graduate*
- 12:20 - 12:40 **Beyond the glass ceiling: Barriers for women to positions of power in the Bahraini banking industry**  
*Ms Layla Al Halwachi, Brunel University PhD (WR) Programme: Current student*
- 12:40 - 13:00 **Factors affecting strategic decision effectiveness in higher education institutions**  
*Ms Esra Al Dhaeni, Brunel University PhD (WR) Programme: Current student*
- 13:00 - 13:20 **Semantics knowledge representation using advanced object-oriented techniques**  
*Ms Samia Yousif, College of Business & Finance*
- 13:20 - 14:20 **Poster Session and Book Exhibition**
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- 15:20 - 15:40 **An efficient approach in near duplicate document detection using shingling-MD5**  
*Dr Suresh Subramanian, College of Information Technology*
- 15:40 - 16:00 **The impact of AAOIFI accounting standards on earnings quality: The case of Islamic banks in Bahrain**  
*Dr Adel Mohammed Sarea, College of Business & Finance*
- 16:00 - 16:20 **The relationship between oil price and stock market index: An empirical study from Kuwait**  
*Dr Ahmed Al Hayky and Mr Nizar Naim, College of Business & Finance*
- 16:20 - 16:30 **Increasing citations: The "Bahrain Scholar" project**  
*Dr Adel Mohammed Sarea, College of Business & Finance*
- 16:30 - 16:45 **Appreciation to Contributors**
- 16:45 - 17:00 **Vote of Thanks (followed by group photographs)**  
*Dr María del Mar de Fez Laso; Dean of College of Graduate Studies and Research and Chair of the Research Forum 2016 Organizing Committee*



Professor  
Abdulla Al Hawaj

Founding President  
Ahlia University

## Foreword

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I am extremely pleased with the success of Ahlia University's Fourth Annual Research Forum, the research highlight of our academic year.

Research is one of the three core functions of a university; it is the foundation of high quality programmes; and it is the basis of all good academic work – whether by faculty or by students. For this reason, it is important that research work is presented and published for scrutiny and evaluation by academic peers. In fact this peer evaluation is often called the “gold standard” of academic life.

The Annual Research Forum is therefore held in pursuit of our aim to follow scholarly traditions and make innovative contributions to our various academic fields. I was pleased to note the dynamism and high standard of the material presented this year. Especially pleasing was the number of contributions from students – a new feature this year – because Ahlia University is committed to ensuring that our students understand the importance of research to their future lives, whether in academia or in other careers. Working together in the furtherance of academic endeavour, our faculty, staff and students are capable of producing material that provokes discussion, suggests solutions and proposes potential avenues for the future development of knowledge.

As the Founding President of Ahlia University I have devoted my life to the pursuit of academic excellence for myself, for our students and for our faculty and staff. The high standard of this year's Research Forum confirms that Ahlia University remains firmly focussed on its research goals and is achieving great success. I am very proud that Ahlia University has established such an excellent reputation for its programmes, its academic work and its research and I know that the whole University is committed to furthering our success, building on our reputation and thereby contributing to the goals of the Kingdom of Bahrain.

I offer my thanks to all the contributors to the Fourth Annual Research Forum and to the distinguished guests who attended and I look forward with great anticipation to next year's event.



Professor  
Mansoor Alaali

President  
Ahlia University

## Introduction

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I am glad of this opportunity to contribute to the Abstract Book for the Ahlia University Research Forum 2016.

One cannot overemphasize the importance of research at Ahlia University. We place a high value on the academic standards of our faculty, as they are foundation of the high quality of our programmes.

In this Fourth Ahlia University Research Forum, as we do annually, we were able to showcase the projects and research activities of our faculty, our staff and our students.

The Forum is an extremely important event in the University's annual calendar because gives an opportunity for our high achievers to show their work and to lead by example so that colleagues can learn and aspire to improve.

The Research Forum contributes to faculty and staff development by providing a space for discussion of academic ideas, allowing for cross-discipline interaction and perhaps creating new areas of research and collaboration. It contributes to student development by enriching their programmes and giving them a taste of the life of an academic.

Key to the success of the Forum is that it involves Ahlia members together with many invited guests from the higher education sector of the Kingdom. It therefore contributes to a wider goal, which is to enrich and develop our society in line with the Ahlia strategy and with Bahrain's future vision.

We are glad that we were able in this year's Forum to build on previous events by incorporating research currently being carried out across all areas of the university and to include our students as well as our staff.

Two significant innovations this year were the addition of dedicated Forum pages on the Ahlia website and the publication of this Abstract Book.

Finally, I want to thank all the participants in this year's Forum for their contributions and also to congratulate the Organizing Committee for their hard work in planning and running this amazing event.

I look forward to continuing progress in Ahlia University's research profile during the next twelve months and to sharing the outcomes with you at next year's Research Forum.



Dr  
María del Mar  
de Fez Laso

Dean  
Graduate Studies  
and Research

## About the Research Forum

I would like to take this opportunity to thank you for your interest in the Fourth Annual Research Forum of Ahlia University.

As Dean of Research, I was delighted to note that participation in and attendance at this year's Forum was the highest by far in Ahlia's history, demonstrating the keenness of our faculty, staff and students to contribute to the growth of our university as a centre of knowledge, of expertise and of service in the support of academic endeavour and of society as a whole.

At Ahlia University we believe that research and innovation must be nurtured from the earliest point in academic life. This year's Forum showed that we are successfully transmitting this spirit to our students, as many proposals were received from undergraduate and graduate students wishing to participate alongside senior researchers. By including students with experienced academics we inspire them to excel, increase their motivation and enhance their future commitment to research. It was also gratifying to note that students' projects showed their desire to be active players in the improvement of society - which is the ultimate aim of all universities.

In addition to presentations by Ahlia faculty, staff and students, this year's Forum was attended by members of several other higher education bodies, whose participation enriched the discussions and underlined that more can be achieved by working together. I would like to thank the Higher Education Council in particular for being present at several of the sessions.

I hope that this Abstract Book will provide a good overview of this year's Forum and of some of Ahlia's current research, innovation and scholarship activities (many more research areas could not be included in the Forum due to time constraints!). Whether you are a student (prospective, current, alumni), an active researcher, a company providing internship opportunities, a private institution looking for new ideas, or simply someone who believes in improving life standards for all, please do come and visit us. Perhaps you could join one of our research groups. Perhaps we could support you in your area of interest. Perhaps you could even be a participant in our next Forum.

Ahlia believes in creative collaborations and we would like to work with you. Come and talk to us. Come and talk to Ahlia University.

## TALKS



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## Energy for the future: The year 2030 and beyond

### Abstract

Fossil fuels will run out one day. The fossil fuel industry itself claims that the earth still holds enough reserves in their various forms to provide energy for the foreseeable future, but others have estimated that we may only experience their contribution to the energy sector for another 70 years or so.

New technologies have been developed during the last few decades to harvest energy from renewable resources. Alternative sources of energy that might produce the earth's power, such as geothermal, waves, space-based solar power, and nuclear fusion are just some of the sources that will likely play big parts in the future energy mix. Some exotic ideas about new sources of energy such as Zero Point Energy and Quantum Energy Generators will be reviewed.

We show that that the advancement of technology can solve radically the energy requirement of the humankind in the foreseeable future and beyond.

### Profile

Professor Shawqi Al Dallal holds BSc Electrical Engineering (Baghdad University); DEA, Doctorat in Engineering and Doctorat d'Etat in Physics (University de Pierre et Marie Curie, France). He joined Ahlia in 2009 and, following a period as Dean of College of Graduate Studies & Research (2010-2015), he is currently a President's Adviser and also Acting Dean, College of Medical & Health Sciences. Previous offices include Consultant to UNDP, Switzerland (1977); Assistant Professor at Kuwait University (1978); Chairman, Department of Physics, Bahrain University (1985-1989); Academic Visitor to Imperial College, London (1990); Professor of Physics (1992); Dean, College of Science, Bahrain University (1991-1995); Member of Shura Council (1992-1995). He is Founding Member and Vice President of Arab Union of Astronomy & Space Science (1998-present); and Founding Member and President of Bahrain Astronomical Society. A participant in more than sixty international conferences; he has organised five international conferences and local, regional and international workshops on renewable energy, climate change, nuclear energy, superconductivity and nanotechnology. He has published over 116 research papers in international journals; an Encyclopedia on Astrophysics; and three other books.

Slides available at:

<http://www.ahlia.edu.bh/fourth-annual-research-forum/>



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## Impact of smart phone use on the musculoskeletal system: A preliminary study in Ahlia University population

### Abstract

Mobile phones, tablets and portable media players have dramatically increased in the past decade. Their handling leads to extensive use of palm muscles and thumbs. This study was to assess the impact of smart phones use on distal upper extremity musculoskeletal system in terms of pain, dysfunction and grip strength. A sample of 100 subjects who were regular smart phone users were recruited to answer Cornell Mobile Phone Hand Discomfort Questionnaires (CMPHDQ), then four special tests and a hand gripstrength test were carried out. In the results, the thumb area showed the highest pain and discomfort scores in R hand and the ulnar aspect showed the highest scores of pain and discomfort in L hand. Finklestein tests showed the highest results in both male and female, while Froment's sign test showed the lowest results. We concluded that extensive use of smart phone is associated with high prevalence of musculoskeletal disorders of distal upper extremity.

This study was co-authored by Dr Dalia Shewitta and two recent graduates from the Bachelor in Physiotherapy programme: Ms Abrar Shehab and Ms Fatima Al Qallaf.

### Profile

Dr Dalia Shewitta joined Ahlia University in 2009. She also holds the permanent rank of associate professor in the faculty of Physical Therapy, Cairo University, Egypt.

Dr Dalia's main research interest is in the field of the women's health and she has published many papers in refereed journals. In addition, she is a member of the editorial boards of many well-known international journals including the International Journal of Therapy & Rehabilitation (UK), International Journal of Health and Rehabilitation Sciences (IJHRS) and Journal of Exercises Science and Physiotherapy. Dr Dalia is a peer reviewer for a number of distinguished international journals, including the Journal of Back and Musculoskeletal Rehabilitation and Geriatric & Gerontology Journal.

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## Integrated reporting: New framework for corporate reporting

### Abstract

Integrated reporting (IR) is a new standard for corporate reporting. IR provides an opportunity for companies to present a holistic and complete picture of the business in a clear, concise, connected and comparable manner. It is a means of presenting the material information about the organization's strategy, governance and performance on commercial, social and environmental issues. Through effectively connecting these areas, businesses are able to provide not only an update on past performance but also a medium and long-term perspective of future value generation. The following questions will be answered such as: What will be the extra cost for extra reporting? Will benefits of IR will outweigh the extra cost? How will the audit profession will change? Can IR require Corporate Governance requirements to change? Can Middle Eastern companies learn from South African companies reporting?

### Profile

Dr Gagan Kukreja joined Ahlia University in 2006 and has over 20 years of experience in university teaching. He also trains CA, CPA, CMA, CIA and ACCA students. Dr. Kukreja is a qualified doctorate supervisor of Brunel University UK. He is on the International Review Panel of Pearson Education and is an organizing team member in various local and international conferences and has chaired various technical sessions of international conferences. He was awarded a Junior Research Fellowship from University Grants Commission, India and holds various professional qualifications such CPA (US), ACCA (UK), CMA (US & India) and CIA (US).

Dr Gagan played an key role in the integration of professional qualifications into various programmes offered by the College of Business & Finance. He uses the latest e-learning tools extensively in his teaching and learning approach and he is regularly involved in the university's quality assurance activities.

Slides available at:  
<http://www.ahlia.edu.bh/fourth-annual-research-forum/>



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## Testing the reliability and validity of a proposed scale

### Abstract

Most academic research studies use surveys and researchers need to assess the reliability and validity of their proposed scale. A scale consists of variables and in addition to observable variables there may be some latent (hidden) variables which must also be measured. Testing the reliability and validity of the scale is therefore a very important step. The aim of this study is to express a strategy to achieve a reliable and valid scale. It also aims to analyse research results about the construct validity and internal-consistency reliability of items proposed to describe latent variables. This strategy emphasizes four main measurements: Cronbach's alpha, inter-item correlation, corrected item-total correlation, and Cronbach's alpha if item deleted. These measurements are significant to provide researchers with clear knowledge about refining the survey scale before using it to collect the data set. This kind of research is required so a complete understanding of the construct validity and internal-consistency reliability of items is realized.

### Profile

Dr Said Al-Hajjar is Associate Professor of Mathematics & Statistics at Ahlia University. He has taught courses in mathematics and statistics for over 20 years; supervising many MBA and PhD students and receiving a number of certificates and awards. His research covers Applied Probability; Maths Education; Statistics Education; General Statistics; Interactive and E-Learning; Modelling, Testing and Analysis and he specialises in using tools such as SPSS, AMOS, PHSTAT 2 and in data selection and interpretation. He has presented scientific papers at many international conferences and workshops, including as a Keynote Speaker at the Gulf E-Commerce Forum GEF 6, 2013. He has also published several research papers in refereed journals, on topics including mathematics, statistics, interactive learning, e-learning education, e-business and marketing. Books include "Introductory Mathematical Analysis" (X-Libris Publishing House, USA); "Basic & Business Course in Statistics I" and "Basic & Business Course in Statistics II" (Author Publishing House, UK); and "Probabilities & Statistics" (LAMBERT Academic Publishing, Germany).

Slides available at:  
<http://www.ahlia.edu.bh/fourth-annual-research-forum/>



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## Teacher professionalism

### Abstract

The topic of whether or not teaching is a profession is still a subject of scholarly debate. Because teachers, unlike doctors and lawyers, for example, are thought to lack rigorous knowledge (Tsui, 2003) and do not usually have control over their professional standards (Day, 1999), teaching has been regarded as a 'semi-profession' or a 'minor profession'. In recent years, there have been attempts to professionalize teaching and teachers (Richards, 2008). For example, in the field of English Language Teaching (ELT), Tsui's works (2003; 2009) focused on language teacher expertise in order to raise the status of the teaching profession by demonstrating to the general public that teachers do in fact have a solid knowledge base which is no less sophisticated than experts in other fields. This short talk discusses the challenges that face the professionalization movement, particularly in the field of ELT, and proposes a new dimension to teacher professionalism.

### Profile

Dr Mohamed Hasan Mohamed is a full time Assistant Professor of English at Ahlia University in Bahrain. He holds a doctoral degree in Education in TESOL (Teaching English to Speakers of Other Languages) from the University of Exeter, UK. He earned his Master's degree in TESOL from the University of Essex, UK and his Bachelor degree in English and Translation from the University of Bahrain.

Dr Mohamed was a Fulbright Scholar in 2007 and worked as a graduate assistant at the University of Pennsylvania, USA for one academic year helping students learn Arabic and doing postgraduate courses in TESOL.

Slides available at:  
<http://www.ahlia.edu.bh/fourth-annual-research-forum/>



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## Compose Walsh Sequences

### Abstract

Walsh Sequences (with the corresponding null sequence formed additive groups) are used widely at the forward links of communication channels to mix the information on connecting to and at the backward links of these channels.

This research generated new sets of orthogonal sequences by compose Walsh Sequences, with the bigger lengths and the bigger minimum distance that helps to increase security of the information and increase the possibility of correcting error resulting in the channels of communication.

This research is of particular practical application in mobile phone communications.

### Profile

Dr Ahmad Hamza Al Cheikha, Assistant Professor, holds a PhD in Mathematics (Algebra) from Damascus University. He also holds a Master Degree in Mathematics from Damascus University (1985) and a Master Degree in Applied Mathematics (Engineer Mathematics) from Polytechnic Institute, Ukraine 1978. He has a Diploma in Mathematics (Algebra) from Damascus University (1981) and a Bachelor Degree in Probability and Statistics (Damascus University, 1972).

Dr Al Cheikha joined Ahlia University in September 2012 as Assistant Professor of Mathematics in the Mathematical Sciences Department of the College of Arts Sciences & Education. His research area is mathematics and information; he published many papers and university textbooks and participates in international conferences.

Slides available at:  
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## Developing a fuzzy database system for heart disease diagnosis

### Abstract

According to the World Health Organization, million of deaths occur annually due to heart diseases and coronary artery diseases (CAD) which are globally rated as the most common cause of death in humans.

With the dawn of the information era, the necessity of using technology in the medical field for diagnosis and treatments has substantially increased. However, medical data are complex and uncertain in most cases. At the same time, this field requires high accuracy and efficiency which can be met by implementing "fuzzy logic" into the system.

The aim of this study is to design and develop a CAD diagnosis system using Fuzzy database. The proposed system calculates a risk factor as a defuzzification method, based on input variables that are recommended by the Bahraini cardiologist: Dr. Khalid Bin Thani (Age, Blood Pressure, Heart Rate, HbA1c, HDL, LDL and Chest pain).

The results obtained from this system are compared with conventional defuzzification methods such as Centroid and Bisector, and gave an average of 98.33% and 98.31% similarity (respectively).

### Profile

Ms Jenan Moosa Hasan first joined Ahlia University in 2008 as an undergraduate student and went on to obtain her Bachelor's Degree in Information Technology in 2012 and her Master's Degree in Information Technology & Computer Science in 2015.

Ms Jenan joined Ahlia's administrative staff in 2013 as a Lab Assistant. She is involved in many Information Technology Department committees and coordinates the INJAZ program in the same department.

Her research interests are Business and Artificial Intelligent Systems, Database Management, Project Management and Computer Programming. Ms Jenan wishes to obtain her PhD in Information Technology and Computer Science.

Slides available at:  
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## Arabian intellectuals - Their role and meaning

### Abstract

An intellectual individual is often described as a person with intensive reasoning and deep thinking, particularly in the fields of study that tend to bring up very interesting topics of discussion. Nevertheless, there are further questions about where the role of the Arabian intellectual lies and how this intellectual's characteristics can be distinguished in the Arab sphere. The definition of an intellectual based on the Arabic dictionary is a person that is able to comprehend and understand information, a person who is always on the lookout for bright and new ideas as well as being a fast learner and a great pursuer of knowledge. Last but not least, an intellectual is a person who sets out goals in building the present and shaping the future.

This research focuses on the ability of the Arabian intellectual to process and understand the ways which may be challenging based on the reality of life's intriguing meanings; whether the intellectual will be able to keep up with the questions and arguments which arise in today's world; and most importantly that intellectual's ability to cope with these changes and new ways in comparison to general beliefs and understandings.

### Profile

Dr Ismail Mseer is a historian and academic who specializes in modern and contemporary Arab history. He has published more than fifty papers in refereed journals. He has also published more than twenty books which focus on historical subjects. Dr Ismail has participated in several international conferences.

Slides available at:  
<http://www.ahlia.edu.bh/fourth-annual-research-forum/>



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## A robust authentication scheme using smart mobile devices

### Abstract

User authentication is the first layer toward securing an internet service and computer system. In last two decades, security researchers have proposed some novel authentication schemes to either replace or improve the text password authentication scheme. However, security researchers focus more on security but less on practical and usability issues related to deployment.

In this talk, we give a brief survey of a wide array of proposed authentication solutions that can be used over the internet. Then, we present our novel authentication scheme MINHO, which protects users from unauthorized access even when their usernames and passwords have been stolen. At the same time, it detects any tries for unauthorized access by attackers. Our idea is to use a smart mobile phone to send a request with specific parameters to the service provider before the authentication process (pre-authentication), then the service provider verifies the pre-authentication parameters during the actual authentication process.

MINHO is a cost effective authentication scheme, easy to use, and does not rely on a third party.

### Profile

Dr Hasan Kadhem received his PhD in Computer Science from University of Tsukuba (Japan) in 2011. He received an MSc degree in Information Technology and an MSc degree in Computer Security from New York Institute of Technology (NYIT) in 2007. He received his BSc degree in Computer Science from University of Qatar in 2003.

Dr Hasan joined Ahlia University in 2015. His research interests include data security, cryptography, database encryption, web & mobile application security, authentication, privacy preserving, and data mining.

**Slides available at:**  
<http://www.ahlia.edu.bh/fourth-annual-research-forum/>



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## Environmental management and sustainable development

### Abstract

The concept of sustainable development has been widely debated in the literature on environmental studies and the future survival of humanity. Social, economic and political dimensions are linked to environmental sustainability.

Currently, in the world we live, there are more than one billion people living in extreme poverty lacking to basic needs for decent living. Resources including food, water and energy are being rapidly depleted due to excessive consumption, unequal distribution, mismanagement and corruption.

This paper sheds some light on the current interrelationships between production and consumption of resources on the one hand, and environmental choices that governments need to make to sustain development on the other hand. Initiatives for correcting environmental imbalances need to be urgently undertaken in order to increase for prospects for sustaining development.

### Profile

Professor Amer Al-Roubaie obtained his doctorate in economics from McGill University in Montreal, Canada. He joined Ahlia in 2005 and, following a period as Dean of College of Business & Finance, is currently an Adviser, also teaching in the Department of Accounting & Economics. He taught economics at Concordia University as an Adjunct Professor and also at several North American and Middle Eastern universities. He was also a Research Fellow at the International Institute of Islamic Thought and Civilization (ISTC), Kuala Lumpur, Malaysia for several years.

Besides economics, his expertise lies in the fields of knowledge-based development, international development, globalization, islamic banking and finance, and international business. His publications include books, research reports and many articles which have appeared in a number of international journals. His latest books are Islamic Banking and Finance (four volume set, published by Routledge, London, 2009) and Islamic Economics (four volume set, published by Routledge, London, 2013) London.

**Slides available at:**  
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## Financial deepening

### Abstract

We analysed the financial deepening in the Gulf Cooperation Council (GCC) with particular emphasis on Saudi Arabia. It provides topography of the financial sector (including ownership, concentration, balance sheet exposures and risks, and financial soundness). We then carried out a benchmark exercise of the financial sector performance - in terms of access, depth, efficiency, and stability - over time and relative to other countries. The benchmarking exercise will facilitate work to identify obstacles to further financial development to sustain high and inclusive growth, and increase the effectiveness of macroeconomic policies.

### Profile

Dr Abdullah Al-Hassan holds PhD and Master's degree in Economics and a Bachelor degree in Business Administration. He joined Ahlia University in 2015.

His background includes more than seven years of experience at the International Monetary Fund (IMF) in Washington DC (USA), where his work is focused primarily on developing economic and financial policies, financial sector, developing capital markets, and sovereign wealth funds. He assessed and designed macroeconomic policies for several developing economies. Also, he led in several official missions advising sovereign wealth funds and workshops to government officials on economic and financial policies. At the same time, he oversaw the work of the International Forum of Sovereign Wealth Funds 2012-2013.

He has published several papers in both practitioner and academic journals. In 2010, he was awarded the Ibn Khaldun Prize for young economist by the Middle East Economic Association.

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## Employing sound bites in the TV news: A comparative study of the media agenda and the use of sound bites in Newscasts on Al Jazeera and Al Arabia regarding political events in Tunisia in 2011

### Abstract

A comparison was done between Al Jazeera and Al Arabia news broadcasters on the length, content, and frequency of phrases, emotion, and language used during broadcasts regarding the Tunisian uprising in 2011. Twenty-eight news broadcasts airing at 18:00 GMT from the period 17 December 2010 to 15 January 2011 were reviewed, with Al Jazeera containing 65 bites and Al Arabia containing 32 bites fitting the criteria and included both sound and image bites. The purposive sampling was taken from this time frame because it extended from Mohammed Buazzizi's suicide until the President of Tunisia, Zine El Abidine Ben Ali, was deposed. A content analysis was undertaken to determine the approach each news channel used and whether an agenda was apparent with the use of phrases, emotion and language. The result of the analysis concluded that Al Jazeera exhibited a more professional approach but also incited their audience with inflammatory rhetoric while Al Arabia continually downplayed the escalating tensions.

### Profile

Ms Maryam Al-Sherooqi completed her MSc in Mass Communication & Public Relations in January 2016. She has been a journalist since 2008, mainly writing for Al Wasat newspaper in the Kingdom of Bahrain. Her career in journalism was prompted by a deep desire to help the people of her country, as she felt they needed a voice and to be heard. She has travelled extensively attending workshops, seminars and forums, including a United Nations development programme. She also presents lectures and courses on various subjects to aid the social development of her people and her country.

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## Medical decision making aided by physicians' leadership: Mediated by social capital in a social networking environment

### Abstract

The rise in the demand to improve healthcare (HC) service quality has led current research to focus on cost effective initiatives like the social networks. Social networks support HC professionals, physicians as in the case of this study, to make better medical decisions to reduce the high rate of currently reported diagnostic errors. This progressing research critiqued the current literature review to propose the need to assess the effect of physicians' leadership on their decision making (DM) style and the mediating role of their social capital between their leadership and DM style. These two relations are proposed in form of a viable conceptual framework worthy of future empirical assessment.

### Profile

Dr Anjum Razzaque joined Ahlia University in 2014. He holds a PhD from Brunel University, UK, and his thesis was in the area of Healthcare Knowledge Management, Medical Decision Making and Virtual Communities.

Dr Anjum actively attains research grants in Higher Education Research area and publishes his findings in peer-reviewed intellectual contributions. Dr Anjum has participated as a reviewer for reputed journals and as conference chair and keynote speaker in international conferences.

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## Establishing Bahrain as a competitive medical tourism hub in the region: A directive study

### Abstract

Medical tourism, a rapidly growing market, has been recognized by many countries as one of potential sectors for economic diversification. Medical tourism is an area of national interest in Bahrain, due to the government's heavy dependence on oil and gas-related revenues and imminent diversification needs of domestic economy due to the current oil price slump. The purpose of this research is to study factors that can establish Bahrain as a competitive medical tourism hub in the region. The aim of the study is twofold, first, to assess Bahrain's potential for developing its medical tourism sector based on its general characteristics, economy, healthcare sector, and tourism market; second, to study Singapore's medical tourism model and its relevance for realizing Bahrain's medical tourism potential. The research is based on a mixed approach of both quantitative and qualitative research design of collection of data and subsequent qualitative analysis. The findings indicated that Bahrain has potential to attain a paradigm shift in its medical tourism competitiveness mainly through sector-wide approach management, which calls for establishing effective public-private partnerships, reinventing healthcare legislation, and encouragement of investment in medical tourism infrastructure. The study concludes that the analysed model of Singapore's medical tourism is relevant and of strategic value to establish a competitive and sustainable medical tourism sector in Bahrain.

### Profile

Mr Ahmed Husain Ebrahim holds BSc in Physiotherapy Sciences (Kuwait University, 2007) and MBA (Ahlia University, Kingdom of Bahrain, January 2016). He joined Bahrain's public health care sector in 2008 and currently works as Head of Rehabilitation Services in the Ministry of Health. He is also a chartered clinical instructor at University of Bahrain since 2014. He is a member of Project Management Institute-USA since 2013. His areas of expertise include excellence practices in medical rehabilitation and holistic management approaches; leadership and value-based management in healthcare field; training, mentoring, and lecturing in academic and professional programs; and quality of life and empowerment promotion strategies.

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## Beyond the glass ceiling: Barriers for women to positions of power in the Bahraini banking industry

### Abstract

This study (focusing on the finance sector) explores how Bahraini women managers conceptualize the effect of the glass ceiling in their career advancement to senior managerial levels. It assesses how they perceive the glass ceiling, and what coping mechanisms they use in eliminating barriers and empowering women to reach senior executive positions. The study identifies the root causes of gender discrimination that impede women's career progression to senior management levels which originate in multiple environmental levels: organisation barriers, societal barriers and individual barriers. The study adopts a qualitative approach to uncover research questions, and conducted in-depth semi-structured interviews with 37 Bahraini female managers in the banks in order to extract a sample of the lived experiences of women managers towards the barriers that hamper their advancement to senior levels. The study captures barriers faced by women within an Arabic-Islamic cultural context and seeks to explore the differences from the barriers that western women experience in their career.

### Profile

Layla Alhalwachi is currently following the Brunel University PhD WR at Ahlia University and is the first student to specialise in Gender and Management Studies. Her research critically explores women's underrepresentation in upper management levels in non-western countries and particularly in Bahrain. Her research attempts to uncover barriers impeding women's advancement in this diverse region and examine the effectiveness of alternative practical coping mechanisms to improve women's presence at senior management level and in the boardroom by investigating the fundamental causes and effects of the glass ceiling phenomenon. She believes her combination of MBA and Bachelor in English Literature with minor in Women's History allowed her to explore how different facets of feminism intersect with literature, and sociality with business and management. Her PhD thesis is submitted and her viva voce exam is due soon.

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## Factors affecting strategic decision effectiveness in higher education institutions

### Abstract

Strategic decision-specific characteristics have been found to be an important factor influencing the strategic decision-making process in organisations. Despite their importance, one rarely comes across any investigation on them. This research attempted to eliminate this limitation in the SDMP literature to some extent, by choosing a rarely-investigated strategic decision-specific characteristic: decision importance. The investigation related decision importance directly to three strategic decision-process characteristics (intuition, rationality in decision making and decentralization in decision making) and indirectly to strategic decision effectiveness. The context for the study was higher education institutions. A cross-sectional study was conducted using a survey questionnaire for collection of data. Correlation analysis was used to test the model and verify hypotheses. This paper will present the findings of the model and further areas for investigation.

### Profile

Ms Esra Al Dhaen has a Master's Degree in International Business (Leeds Business School, UK, 2007) and is now following a PhD in Management Studies with Brunel University (UK), investigating Strategic Decision Processes in the context of Higher Education Institutions (HEIs) for performance effectiveness.

Currently working as Director of Ahlia's Centre for Accreditation & Quality Assurance, Esra applies knowledge gained through her research and her previous diverse background. She contributes as part of the AU team to the implementation of Ahlia's Quality Management System and supports evaluation of its effectiveness, to set baseline measures towards AU's strategic vision and mission and support planning, leading to achievement of AU objectives and delivery of high quality academic standards on all AU's academic programmes.

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## Semantic knowledge representation using advanced object-oriented techniques

### Abstract

Learning English language has become more important than ever. There is a great deal of research on natural language representation and processing, but little or no significant research on creating intelligent semantic dictionary systems. This research is the first to effectively use Object-Oriented (OO) techniques and enhance UML to deal with English language semantics for simple sentences and phrases focusing on the semantic aspects in addition to the grammar aspects. SEMANTIC ENGLISH is an intelligent OO eLearning system based on advanced UML. It contains English words, their translation to Arabic, associated actions, semantic relationships, inherited actions and attributes, special and exceptional relationships and other semantics and characteristics. The major contribution of SEMANTIC ENGLISH is in its ability to accept knowledge written in English words and represent this knowledge in an OO model. One of its best achievements is the ability to represent relationships between objects (English) and generate new deduced semantics.

### Profile

Ms Samia Yousif holds a BSc in Electrical Engineering and MSc in Computing Science (University of Bahrain) and CCNA, CCNP, CCDA and Diploma in Quranic Culture (Kingdom of Bahrain). She has published research papers and conference publications, as well as authoring and reviewing a number of books. She has also received many research awards from Ahlia University and received the e-Government Excellence Award (e-Education Award entitled: Object Oriented Techniques for an Intelligent Multi-Purpose English-Arabic Language Dictionary System called TOOT) from the Bahrain government. Samia has ten years' teaching experience in Computer Science, IT and MIS. She worked on the development of computer systems and professional website applications using up-to-date web technologies.

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## An efficient approach in near duplicate document detection using Shingling MD5

### Abstract

The internet has a large amount of information, which may be html documents, Word and PDF files, audio and video files, images etc. Search engines face huge challenges in providing the required and related documents to users according to their query. In addition, detecting duplicate and nearly duplicate documents is a highly cumbersome process as the internet is such a large collection of data.

Duplicate and nearly duplicate documents play an important role in the performance degradation of the search process and integrating data from heterogeneous sources. These documents either increase the index storage space or increase serving costs. Detecting these pages has many potential applications, including indicating plagiarism or copyright infringement.

This paper concerns detecting, and optionally removing, duplicate and near duplicate documents using the Shingling-Near Document Detection process involving message-digest algorithm (MD5). Experimental results show that the proposed technique removes duplicate query results from specified web documents set efficiently.

### Profile

Dr Suresh holds a PhD in Web Mining (Karpagam University, Tamil Nadu India, 2015) and a first class bachelor degree; as well as MCP and MCPD Professional Certifications. He has published 6 papers in international journals and 1 conference paper. He has 18 years' experience in teaching and software development (.NET and SQL Server, Sharepoint 2010). He joined Ahlia in 2009 and, as well as his current role as Information Systems Analyst in the ICTC, he is also Assistant Area Director of Area 39 (Bahrain) for Toastmasters International (since June 2015). His Toastmasters International prizes include International Speech Third Prize Winner and Club Level Winner in Humorous Speech & International Speech (both at the Area 39 Contest 2015).

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## The impact of AAOIFI Accounting Standards on earnings quality: The case of Islamic Banks in Bahrain

### Abstract

The purpose of this paper is to examine the change in earnings quality after the adoption of AAOIFI Accounting Standards in Islamic Banks of Bahrain. In this paper we hypothesize that, adoption of AAOIFI accounting standards could lead to high level of earnings quality. Data were collected from the annual reports of 5 Islamic banks in Bahrain during 2002-2011. The findings indicate that the change in earnings quality after the adoption of AAOIFI in Islamic Banks of Bahrain is higher due to the improvement of the quality of financial reporting. The adoption of AAOIFI accounting standards is expected to lead to a high level of earnings quality among Islamic Financial Institutions and play a significant role in attracting the interest of global investors to the local markets, especially in developing countries like Bahrain

### Profile

Dr Adel Sarea holds a PhD (Accounting) Doctor of Philosophy in Economics and Business Administration (Islamic Science University of Malaysia, 2011). He joined Ahlia University in January 2012 and has been Director of the Ahlia MBA since 2013.

Dr Adel conducts research in the areas of Accounting for Islamic Financial Institutions, International Accounting Standards, Financial Reporting, Earning Quality, Earning Management, Intellectual Capital and Accounting Education and has published in well-respected international journals. He is appointed as a recognized PhD supervisor by Brunel University (UK). He also serves as a member of the editorial boards in a number of international journals.

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## The relationship between oil price and stock market index: An empirical study from Kuwait

### Abstract

This study attempts to empirically examine the dynamic relationship between oil price and Kuwait's stock market index. The study applied the Markov Switching Model to investigate regime shifts between low- and high-volatility regimes using monthly data from January 2005 to September 2015. The study found that stock market index reacts differently to changes in oil price in different regimes. During high volatility regime, there is a positive and significant relationship between oil price and stock market index. However, in low volatility regimes there is no relationship between them. The study also identified four transition episodes of high volatility during 2005M04-2006M01, 2006M04-2006M06, 2008M10- 2009M08 and 2013M05-2013M09. The results of the study could be used by policy makers to reduce the negative effect of oil price on the stock markets in the GCC region.

### Profiles

Dr Ahmed Al Hayky holds a PhD in International Finance (2011, Shanghai University of Finance & Economics, China). Dr Al Hayky joined Ahlia University in February 2011 as a Lecturer and was promoted to Assistant Professor in September 2011. He started his career with Business International WII in 2004 as General Accountant responsible for preparing annual reports and group accounts.

Mr Nizar Naim joined Ahlia in 2014. He holds MBA Majoring in Finance (2007, Eastern Michigan University, USA) and BSc Business Administration (2000, Al Azhar University, Gaza). He has over 12 years' experience in academic and international organizations such as UNRWA, Oxfam UK, CARE USA and Islamic Relief UK. He was awarded a Full Scholarship by United States Agency for International Development (USAID) Presidential Scholarship Program (PSP) for his MBA (2004-2007). Research covers banks & financial services; corporate finance and governance; financial markets and institutions; investments and portfolio management.

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## Increasing citations: The “Bahrain Scholar” project

### Abstract

To promote Bahrain regionally and internationally, the Kingdom’s research profile needs to be raised. Bahrain’s Higher Education Council notes in the National Research Strategy 2014-2024 that this “will help determine the direction to construct a knowledge-based economy, in line with the country’s goals under the 2030 National Vision”.

As a first step, this study assessed the current level of research citations and considered the impact of increasing research citations on higher education in Bahrain, noting that tools to promote research and increase research citation, including use of social media, can have a major impact on research profile. The results of the study show that a new locally-focused citation tool provisionally entitled “Bahrain Scholar”, which works by reviewing the relevant literature in order to increase citations, is a potential development worth exploring, to boost research citation and increase the role of research in the future of the Kingdom.

### Profile

Dr Adel Mohammed Sarea holds a PhD in Economics and Business Administration ( Accounting) from the Islamic Science University of Malaysia (2011). He joined Ahlia University in January 2012 and has been Director of the Ahlia MBA since 2013.

Dr Sarea conducts research in the areas of Accounting for Islamic Financial Institutions, International Accounting Standards, Financial Reporting, Earning Quality, Earning Management, Intellectual Capital and Accounting Education and has published in well-respected international journals. He is appointed as a recognized PhD supervisor by Brunel University (UK). He also serves as a member of the editorial boards in a number of international journals.

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## POSTERS



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## Neuromarketing and its ethical implications on children

### Abstract

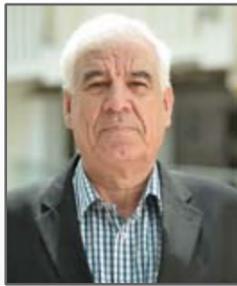
Neuromarketing (NM) uses clinical information about brain functions and mechanisms to help explain what is happening inside of the "black box" which provide explanations of consumer behaviour. Neuromarketing's strength is that it may hit on subconscious biases that traditional advertising methods, such as focus groups, fail to uncover (Quartz cited in Singer, 2004). Some marketing experts believe brain imaging, eventually, might even indicate how to ignite pleasurable feelings in consumers at the prospect of rewards (Huang, 2005). Psychiatrists think brain clues might help marketers target customers more precisely (Psychiatric Annals, 2004). In other words, the potential for neuromarketing to reduce marketing failures and increase marketing successes seems quite promising; although not without controversy. According to James (2004), the only time a human being cannot help acting upon emotions is as a toddler. There exists a code of ethics that indicates the importance of protecting the vulnerable groups including children. However, it is lacking the mechanism on how to do so. The researcher is considering adopting a qualitative research approach for this investigation. The researcher considers the implementation thematic analysis utilizing focus groups and interviews.

### Profile

Ms Amani Al Abbas joined Ahlia University's Management and Marketing Department in 2010 as a lecturer specialising in Marketing. She is interested in consumer behaviour, promotion and advertising as well as social media marketing. More specifically, her work examines neuromarketing and its implications. Amani Al Abbas is a member of PRIMA (Professional Risk Manager's Association) and a member of SMC (Social Media Club). She also won the "Best graduation project" in 2007 from University of Bahrain and received an Ahlia University award for high academic achievement in 2009. She worked previously at many organisations giving her the opportunity to harness experience in the management and marketing fields. She is currently following the Brunel University PhD without residence programme at Ahlia University and researching the ethical implications of Neuromarketing tools on the vulnerable population.

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## Compose Walsh Sequences

### Abstract

Walsh Sequences (with the corresponding null sequence formed additive groups) are used widely at the forward links of communication channels to mix the information on connecting to and at the backward links of these channels.

This research generated new sets of orthogonal sequences by compose Walsh Sequences, with the bigger lengths and the bigger minimum distance that helps to increase security of these information and increase the possibility of correcting error resulting in the channels of communication.

This research is of particular practical application in mobile phone communication.

### Profile

Dr Ahmad Hamza Al Cheikha, Assistant Professor, holds a PhD in Mathematics (Algebra) from Damascus University. He also holds a Master Degree in Mathematics from Damascus University (1985) and a Master Degree in Applied Mathematics (Engineer Mathematics) from Polytechnic Institute, Ukraine 1978. He has a Diploma in Mathematics (Algebra) from Damascus University (1981) and a Bachelor Degree in Probability and Statistics (Damascus University, 1972).

Dr Al Cheikha joined Ahlia University in September 2012 as Assistant Professor of Mathematics in the Mathematical Sciences Department of the College of Arts Sciences & Education. His research area is mathematics and information; he published many papers and university textbooks and participates in international conferences.

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## A communication tool, mobile application for Arabic and American sign languages as part of teaching and learning

### Abstract

Students with special needs often have circumstances which could be considered as a challenge when communicating with the wider community. Higher Education Institutions in Bahrain are supporting students with special needs to enable them to proceed with their studies by facilitating them with the support required. Supporting students with special needs is widely considered by researchers as a community contribution.

In recent times, mobile phones have become an indispensable item in many aspects; therefore this project proposed a special feature or application to be used for teaching and learning which is accessible by simple touch triggers on mobile devices.

The aim of this application is to support deaf and dumb students, parents and lecturers with learning sign language, which is a powerful mechanism to assist students with special needs in their daily routine, and to integrate the application as a tool in communicating with them.

The app demonstrates various ways of communication (oral, symbolic and written) which can be integrated into teaching and learning.

### Profile

Ms Fatema Al Dhaen received a Master's degree in Information Technology from Ahlia University, topic "Computer Learning Programme To Assist Special Needs." She has published numerous papers in journals and participated in many conferences in and outside Bahrain as a speaker and as Master of Ceremonies.

She contributed as speaker in several prominent workshops and conferences including "Higher Education in the 21st century" which was held under the Patronage of his Majesty King Hamed bin Isa Al-Khalifa and as speaker at the "Integrating Special Needs in Higher Education Forum" in 2016.

Besides her academic distinction, she is a national poet, writer and journalist; she likes to engage in community services and social integration especially for orphans, elderly people and human rights.

She is one of the main founders of the "Together Society for Human Rights" which was established in 2013 and approved by Ministry of Social Development and Bahrain's Centre for Human Rights.

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## Uniform anti money laundering policy and laundering process eradication

### Abstract

The study explains the effectiveness of anti money laundering measures of banks in Bahrain. They help to monitor, regulate and prevent conversion of illegal proceeds into legitimate earnings. Prevention of such crime is attributed to efficient tracking, detecting, searching, seizing, apprehending and convicting. These deter launderers to exploit banks to smurf, place, layer and integrate tainted money and legitimize them. Eradication of laundering process becomes a reality when the Central Bank and Financial Intelligence Unit in Bahrain comply with FATF 40+9 recommendations, aiding robust utilization of CDD, EDD, KYC, CTR, SAR and STR. Judicious exploitation of these dissuades trafficker, frauds, embezzlers and terrorists to abuse of Bahrain's banks and banking system, enhancing their reliability and accelerating inflow of legitimate investment.

### Profile

Ali Abdulla Al Jowder is a Director of Anti Corruption Crime in the Ministry of Interior of Bahrain. He previously was Head of Bahrain Financial Intelligence Unit. He received his first degree from King Fahad Security College 1998; he earned his MBA from University of Glamorgan in 2003; and he earned his second master degree (in Management & Business Studies Research) from Kingston University UK in 2012. Currently he is carrying out his PhD with Brunel University at Ahlia University researching into Uniform Anti Money Laundering Policy And Laundering Process Eradication.

Slides available at:  
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## The distribution of the outflow for linear reservoirs using the Fast Fourier Transformation method

### Abstract

Stochastic Reservoir theory is concerned with applications of stochastic processes and Markov chains, which play an important role in mathematical statistics and its applications.

One of the most important problems in linear reservoirs is the distribution of the storage. The main goal of this paper is to

- find the distribution of the outflow of linear reservoirs
- find the storage distribution

The applied method of finding the distribution of the outflow from a linear reservoir using the numerical inversion of Laplace transform is based on a simple technique known as the Fast Fourier Transformation.

### Profile

Mr Mohammad Al Shoqran holds MSc Mathematics (2008) and BSc Mathematics (2005) both from Al Albayt University in Jordan. He joined Ahlia University in 2011 as a Lecturer in the Mathematical Sciences Department.

His main research interests include Mathematical Statistics, Stochastic Processes and Markov Chain. He has one published paper in this field of research and is currently writing other papers. In his academic work he uses various mathematical programs including MATLAB, MathCAD, Mathematica, SPSS and MathType.

Mr Al Shoqran is keen to increase general understanding and teaching of mathematics and statistics through lectures and consultations. In addition to teaching statistics and mathematics and his other academic activities, he qualified from the Capacity Building Program for Developing Business Counsellors.

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## Impact of website quality on higher education students' purchase intention: An empirical study of the Kingdom of Bahrain

### Abstract

Nowadays, we are living in an age when use of the internet is second nature to millions of individuals. Click stores and online shops have become the most efficient, effective and fast way to sell or buy a product anywhere in the world, and are better than physical shops which are restricted by geographical boundaries.

The aim of this research is to find the associations between website quality and students' purchase intention. This research will use a quantitative method, known as descriptive literature review. The researchers believe that the results of the research will support their hypothesis.

### Profiles

Mr Mohsen Ali currently is completing his BSc Management Information Systems at Ahlia University. He is also working as Business Coordinator at Unicorn Technology Centre.

Mr Sadeq Alshaikh completed an Associate Diploma in Web Design & Management at Bahrain University. He is currently studying for Bachelor's Degree in Management Information Systems at Ahlia University. He works as a Project Coordinator with Ramsis Engineering Company.

Mr Ahmed Hasan holds a Diploma in Commercial Studies from University of Bahrain and is currently completing BSc Management Information Systems at Ahlia University. He works as a Registration Specialist at Isa bin Ali Secondary School.

Mr Sayed Kadhim finished his Higher National Diploma in Business Information Technology at Bahrain Training Institute and is currently completing his BSc Management Information Systems at Ahlia University. He works as Desktop Engineer at Al Moayyed.

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## The effectiveness of Brandt-Daroff technique in treating patients with acute and chronic BPPV

### Abstract

Benign Paroxysmal Positional Vertigo (BPPV) is one of the causes of imbalance in specific head positions and, if not cured, patients can remain with persistent balance problems. Brandt-Daroff technique (BDT) has been shown to be an effective treatment for patients with acute BPPV, but no study has investigated its effect on patients with chronic BPPV. This study compared the effectiveness of BDT in patients with acute and chronic BPPV by dividing 100 BPPV patients into two groups (acute [n=57] and chronic [n=43]) based on specific inclusion/exclusion criteria. All patients received BDT on regular daily basis for two months. Vertigo duration at onset and at discharge and physical therapy treatment duration until recovery (PTD) were measured. At the end of the study both groups had significantly improved, with the acute group showing significantly faster recovery rate than the chronic group (PTD=17 days versus PTD=27 respectively). We conclude that early intervention is essential for fast recovery from BPPV and both acute and chronic BPPV patients can benefit from BDT.

### Profile

Dr Redha Dashti holds Doctor of Physical Therapy (St Augustine University, Florida USA, 2007), MSc in Neuro Physiotherapy Rehabilitation and Vestibular Rehabilitation (MGH-IHP Boston, 1997) and BSc PT (Kuwait University, 1992). He has 22 years' experience as expert consultant in neurology physiotherapy and vestibular rehabilitation. Appointed Chairperson of Physiotherapy Department in April 2013, he previously worked as Specialized Consultant Physiotherapist in Bahrain's Ministry of Health (1992-2013) and as part-time senior lecturer at Ahlia University (2004-2013). Among his many awards are Best Performance in Physical Therapy (Kuwait Uni, 1990); the Mary Mankin Prize for Most Outstanding Master's Degree Thesis (Boston, Massachusetts USA, 1998); and Staff of the Year at Salmaniya Medical Complex Physiotherapy Department, Bahrain (2004). In 2010, he was awarded Bronze Medal at ALABTIKAR International Invention Competition for his Vertigo Free Device (VFD), Patent No 1524.

Slides available at:  
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## The use of mobile commerce in purchasing goods and services

### Abstract

Smartphones have become the most common devices used to access the internet. This trend has caused online retailers to offer mobile friendly services. Bahrain has the highest rate of internet usage per person in the Arab world. There is a lack of information about the usage of online shopping service in Bahrain. Using the unified theory of acceptance and use of technology, this research aims to determine the main factors that draw users towards the different online shopping service available to them. Collecting data from a focus group of 100 students from Ahlia university will help shape the ideal online shopping application in Bahrain. This application will be developed as part of the project.

### Profiles

Mr Tami Alnassar is completing a bachelors degree in Management Information Systems. He holds a Diploma in Management Information Systems and decided to continue studying because he is interested in software development.

Ms Nada Isa holds a National Diploma in Office Admin from BTI and is a Supervisor in Admin & Financial services in the Ministry of Education. She is currently completing a bachelors degree in Management Information Systems.

Ms Alia Rashid is currently completing a bachelors degree in Management Information Systems. She is interested in finding ways to improve the community.

Mr Sayed Salman is completing a bachelors degree in Management Information Systems. He is currently working in Ahlia University's Information Technology department. Sayed is interested in programming and designing.

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## The effect of space planning on the educational process of students with visual impairment

### Abstract

In the last few decades, interest in special needs education and engagement in the community has increased rapidly and consequently led to greater attention on creating a comfortable environment that suits all sorts of student needs. This study explores possible design ideas and solutions for special needs students and especially visually-impaired students who critically have difficulties in accessibility and circulation issues.

The design proposal takes place in The Bahraini-Saudi Institute for the Blind (Isa Town, Bahrain) and is aimed at enhancing its interior environment. It will include several design considerations that effect the creation of space and atmosphere based on functional requirements and lighting integration. The anticipated results of this study will provide a collection of international design considerations that will assist interior designers in creating a better indoor environment for visually impaired students. Last but not least, the study results will benefit the Kingdom of Bahrain and the GCC countries towards a better and more balanced community.

### Profile

Ms Fadwa Majed is an interior design student due to graduate in 2016 from Ahlia University's Bachelor Degree in Interior Design. She has been interested in the field of design since an early age. She is always taking the chance to widen her expertise by volunteering as a designer for a variety of organization such as the local National Guard, Beach Safety Organization and other campaigns. She is also a certified graphic designer (awarded by The Shaw Academy, Ireland).

**Slides available at:**  
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## Enhancing environmental sustainability of healthcare facilities: A system dynamics approach

### Abstract

Healthcare administrations are facing great challenges to enhance healthcare facilities environment in order to achieve sustainable healthcare and to fulfil sector commitments toward climate change by reducing carbon and greenhouse gases emissions. Through a systematic literature review, the main challenges are found to come from facilities energy consumption and waste generation. To overcome these challenges, literature calls attention to develop sustainable healthcare facilities model comprising of all contributory elements including energy efficiency, energy saving, water saving, renewable-base technologies and waste recycling, without compromising healthcare service. System Dynamics Modelling is used to implement and analyse future healthcare facilities development and the future risks and implement a mitigation strategies to reduce these risks. The research results strongly supported the implication of stated environmental impacts and the effectiveness of suggested measures in mitigating the undesirable results on healthcare services.

### Profile

Mr Salman Ali Salman Shehab is a Senior General Engineer in the Directorate of Engineering & Maintenance at the Ministry of Health, Bahrain. He holds an MSc in Building Services Engineering & Sustainable Energies (School of Engineering & Design, Brunel University London, UK, 2010) and a BSc in Mechanical Engineering (King Abdul-Aziz University, Jeddah, KSA, 1991). He is currently following the Brunel University PhD without residence programme at Ahlia University and researching in Energy and Sustainable Healthcare System, Brunel Business School, Brunel University London, UK. He began his studies in 2013 and is expected to receive his doctorate in 2016.

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## The role of social media in continuing professional development of physical therapists: A review of the literature

### Abstract

Continuing Professional Development (CPD) is an important component in maintaining professional competency.

Advancement of technology offers unlimited opportunities such as social media (SM) as a potential and innovative tool for their CPD activities. However use of SM for CPD of PTs is yet to be investigated. The study aimed to review the current use of social media for knowledge sharing as a component of CPD for PTs. A literature search was conducted of the titles and abstracts of published literature by means of the following e-databases: Medline, CINAHL, COCHRANE, PEDro, and Google scholar, and using multiple key words alone or in combination for articles in English between 1980 and 2014.

Initial searches retrieved n=986 articles and after exclusions 26 relevant documents were identified. The researchers concluded that there is a lack of information regarding the use of SM as a tool for CPD by PTs and further research is required to determine if SM can be effectively used for CPD of PTs.

### Profile

Litty Shibu began her academic career in 2000 as Lecturer at Padmashree Institute of Physiotherapy, Bangalore and as Clinical Physiotherapist in Padmashree Rehabilitation Centre. She joined Ahlia as a Lecturer in 2004 as part of the BSc PT program team. She completed her Master's Degree in Hospital Administration (MHA) at RGUHS Bangalore (2010) and she is currently following the Brunel University PhD without residence program at Ahlia University. She is interested in management of Physical Therapy practices and Human Resource Development. Her published research includes "Role of social media in continuing professional development (CPD) of physical therapists" (poster presentation at WCPT World Congress 2015, Singapore) and "Prevalence of Work-related Musculoskeletal Disorders amongst Physical Therapists in the Kingdom of Bahrain" (Physiotherapy, 2015; Vol 101, pp e54).

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## Computer Jobs and Certifications: Choose and Improve Your IT Career

### Introduction

This book is an excellent choice for anyone working in the field of IT or studying for an IT or IT related degree. It was written to serve as a guide for IT professionals, IT job seekers and IT students and to address the major challenges facing these individuals.

The book contains a complete and comprehensive survey of current computer jobs in all the important fields of IT. It includes descriptions of each job and the requirements needed. Also included is a complete survey of the important IT certifications across the range of IT fields. This is cross-referenced to the jobs, to provide a unique guide and reference manual.

This book will also support companies employing IT professionals, by providing a guide for IT job descriptions and the related professional certifications.

### Profiles

Professor Mansoor Alaali became President of Ahlia University in 2015, after six years as Dean of Students. He joined Ahlia in 2008 after 19 years at the University of Bahrain. He gained a bachelor's degree at University of Teesside (UK), then master's and PhD at University of Aston in Birmingham (UK). A Chartered Engineer of the British Computer Society, he is a member of several academic and professional bodies. His research interest is applied computer science, particularly data mining and semantic approaches to automatic translation. An editor and reviewer for international refereed journals, he has written several books and numerous journal and conference articles; delivered keynote speeches; and is a committee member for local, regional and international conferences.

Ms Samia Yousif holds a BSc in Electrical Engineering and MSc in Computing Science (University of Bahrain); CCNA, CCNP, CCDA; and Diploma in Quranic Culture (Kingdom of Bahrain). She has published research papers and conference publications, as well as authoring and reviewing a number of books. As well as Ahlia research awards, she received Bahrain's e-Government Excellence Award (e-Education Award entitled: Object Oriented Techniques for an Intelligent Multi-Purpose English-Arabic Language Dictionary System called TOOT). She has ten years' teaching experience in Computer Science, IT and MIS. She worked on the development of computer systems and professional website applications.

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## Work Ethics: Their Significance and Applications

### Introduction

Ethics are extremely important in various spheres of our lives because of their significant impact on human behaviour and actions. It can be said that ethics are the reflection of human attitude towards the values and characteristics he/she believes in. The main objective of this book is to explain the preferred work ethics to be adhered to and applied by all groups associated with any given organization, including employees, managers and business owners. This book discusses human ethics including honesty, integrity, loyalty, perfection, fulfillment, fairness, compassion, politeness and modesty. The book explains the role of ethics in empowering both the employee and the employer to achieve good progress and development; find peace of mind; and improve productivity. The book aims to define workmanship, professionalism and work ethics. It also clarifies what these are, their causes and how they influence individuals, society, commerce, industry and even nations. We have endeavoured to produce the book in a new, appealing and interesting style for the benefit of general readers and of employees and employers in particular.

### Profiles

Professor Mansoor Alaali became President of Ahlia University in 2015, after six years as Dean of Students. He joined Ahlia in 2008 after 19 years at the University of Bahrain. He gained a bachelor's degree at University of Teesside (UK), then master's and PhD at University of Aston in Birmingham (UK). A Chartered Engineer of the British Computer Society, he is a member of several academic and professional bodies. His research interest is applied computer science, particularly data mining and semantic approaches to automatic translation. An editor and reviewer for international refereed journals, he has written several books and numerous journal and conference articles; delivered keynote speeches; and is a committee member for local, regional and international conferences.

Ms Samia Yousif holds a BSc in Electrical Engineering and MSc in Computing Science (University of Bahrain); CCNA, CCNP, CCDA; and Diploma in Quranic Culture (Kingdom of Bahrain). She has published research papers and conference publications, as well as authoring and reviewing a number of books. As well as Ahlia research awards, she received Bahrain's e-Government Excellence Award (e-Education Award entitled: Object Oriented Techniques for an Intelligent Multi-Purpose English Arabic Language Dictionary System called TOOT). She has ten years' teaching experience in Computer Science, IT and MIS. She worked on the development of computer systems and professional website applications.

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## Probabilities and Statistics

### Introduction

This book on probabilities and statistics analyses various hypotheses which are particularly relevant to the difficulties encountered when teaching probabilities. It shows how the probability model is useful to resolve certain confusions. The book does this by formulating questions that can be addressed and answered by data collection, organisation and display. The book uses cases studies, including the solution to the problem question "Who will win a million?" which is a very useful case study for improving probability education through statistical experiments.

Another key contribution of this book is the definition of probability as "the mystery of mathematics" or "the existence of non-existing theory"!

### Profile

Dr Said Al-Hajjar is Associate Professor of Mathematics & Statistics at Ahlia University. He has taught courses in mathematics and statistics for over 20 years; supervising many MBA and PhD students and receiving a number of certificates and awards. His research covers Applied Probability; Maths Education; Statistics Education; General Statistics; Interactive and E-Learning; Modelling, Testing and Analysis and he specialises in using tools such as SPSS, AMOS, PHSTAT 2 and in data selection and interpretation. He has presented scientific papers at many international conferences and workshops, including as a Keynote Speaker at the Gulf E-Commerce Forum GEF 6, 2013. He has also published several research papers in refereed journals, on topics including mathematics, statistics, interactive learning, e-learning education, e-business and marketing. Books include "Introductory Mathematical Analysis" (X-Libris Publishing House, USA); "Basic & Business Course in Statistics I" and "Basic & Business Course in Statistics II" (Author Publishing House, UK); and "Probabilities & Statistics" (LAMBERT Academic Publishing, Germany).

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## Improving Information Security Practices Through Computational Intelligence

### Introduction

There are different mechanisms to protect stored, processed and transmitted information. Security services are implemented through security mechanisms, which are divided into three broad categories: Prevention, Detection, and Recovery. Security mechanisms include encryption, entity authentication, digital signature, and information hiding.

Computational intelligence (CI) techniques can be used in information security. Genetic algorithm (GA) is a search algorithm based on the mechanics of natural selection and natural genetic. Genetic programming (GP) is an application of GA, in which the structure under adaption is a set of computer programs. It is capable of evolving computer programs that solve, or approximately solve, a variety of problems. Cryptology problems (ie designing and analyzing good cryptographic systems) attract many researchers and many different techniques and methods have been proposed to solve these problems, including algorithms using approaches based on CI techniques.

This edited book covers the most important achievements in solving security problems using CI techniques such as GA and GP, showing their suitability for solving these problems and giving researchers an overview of methodologies and new directions in information security.

### Profile

Dr Wasan Shakir Awad holds BSc, MSc, and PhD degrees in Computer Science. She joined Ahlia University in 2014 and became Dean of the College of Information Technology in 2015.

Dr Wasan has 17 years' teaching experience in computer science and information systems, and seven years' post-graduate teaching and supervision experience, more than 30 postgraduate students supervision. Her teaching and research focuses on problem solving and algorithms design, computer programming, information systems development and software engineering, most computer applications, research and development in computational intelligence, coding theory, and information security. She is also experienced in preparing academic programs, scientific and project planning and administration and in the processes for quality assurance and accreditation of academic programmes. Dr Wasan has published papers in various fields of computer science and IT in a number of international journals and at conferences. She also serves as an editorial board member for a number of international journals and conferences.

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## Arabic Journalism and the Culture of Differences: Analytical Study

### Introduction

This book is based on a study submitted to Bahrain's Political Development Institute as contribution to spread the message of the culture of differences in the Arab community.

Difference in opinion is a human trait that leads to establishing ethical and cognitive components, which help create acceptance of different opinions and other points of view, even if judged to be "wrong". In the book, the researcher attempts to address an issue that serves the interest of many thinkers and authors.

The study aimed to identify the role played by opinion-themed articles in deepening awareness with regard to the culture of difference and maintaining the moral traits of Arab society. It considered communication; editorial trends; most-targeted groups; types of opinion-themed articles; and the style followed by Arabic press in handling the culture of differences by analysis of articles in printed and online newspapers between November 2014 and August 2015.

The book covers the study's theoretical framework; its procedural approach; the results, together with analysis, recommendations and suggestions.

### Profile

Dr Zuhair Dhaif earned a Master's degree and PhD (Excellence with honors) in Information and Communication Sciences from the Universidad Complutense de Madrid (Spain). He worked as associate professor in Media and Journalism Department of the College of Information in University of Baghdad (Iraq). He also practised journalism and media work in several governmental and official institutions, holding various managerial and editorial posts; and worked as media consultant for Iraq Radio and Television. He was dean of the Faculty of Education for Women in the University of Kufa (Iraq). He joined Ahlia University in 2006 and is currently Associate Professor and Chairperson of the Department of Mass Communications and Public Relations.

Dr Zuhair has been an academic for over 25 years, teaching and researching in various areas of the field of media and journalism. He has supervised over eighty MA and PhD theses and conducted many workshops and seminars. He has participated in many Arabic and international conferences.

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## Arabic for Non-native Speakers

### Introduction

This book is published as the first of a planned three-book series. This first book targets the beginner's level, the second will focus on the intermediate level and the third will address the advanced level.

The book has two main sections: The first section focuses on reading and the second focuses on the beauty of writing. The book starts by teaching the Arabic letters, then deals with words and then moves on to full sentences. The book contains numerous exercises and activities which support the theoretical parts in order to help the learner master reading skills first and then writing skills. This book acts as an introductory stage before the second book (for intermediate level) which in turn paves the way for the third book (at advanced level) & instruction in the Arabic language.

The book has been published recently by Dar Al-Sadiq Cultural Establishment in Baghdad, Iraq and Dar Al-Mongeah in Amman, Jordan.

### Profile

Dr Ali Omran holds a bachelor's degree from University of Bahrain; a master's degree from Saint Joseph University (Lebanon); and a PhD in Arabic Language and Literature from University of Manouba (Tunisia). He worked at Bahrain's Ministry of Education and joined Ahlia University in 2014.

He is an expert in intellectual property rights and literary works. His particular research interests are Arabic language and literature, criticism and rhetoric. He has published several journal articles and conference papers, together with over twenty books.

Dr Ali is a member of Arabic Language Protection Society and the World Council of the Arabic language. He participates in various heritage and cultural organisations including holding various committee positions and acting as a judge in several cultural competitions.

Awards include the Excellence Award for Books and the Performing Arts (2008) and the Medal of Excellence Insignia (2009) both from the Ministry of Media, Culture and National Heritage in Bahrain.

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## Principles of Arabic Word Analysis

### Introduction

This book entitled Principles of Arabic Word Analysis aims to simplify the Arabic language by framing it in modern patterns of thought and make it more appealing and interesting for students. The content is the product of extensive research over the past 25 years.

The overall goal of the book is to encourage the study of the Arabic language, and to attract people back to studying the language after years of staying away from it.

The book will be a useful academic reference for all students of the Arabic language, because it addresses the difficulty of Arabic language grammar by including easy methods and explanations for grammar rules. Its target audience is university students and Arabic grammar beginners in all corners of the globe

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## Audit Methodology and Business Audit Risks

### Introduction

The audit process is not a simple one: it is a complex process that developed from hypotheses and theories and has been refined into methods and approaches to keep pace with contemporary challenges. This book will help researchers and auditors understand the scientific and practical foundations of the audit process. It covers the economic conditions, methodology and motives that affect audit strategies, from simple documentary audit to audit strategy based on business risk. The book also includes practical examples from financial institutions.

This book will be useful for students and undergraduates, academics, businessmen, auditors and specialists in the field of accounting, auditing and economics as well as investors and workers in the banking sector. Written in a clear scientific way, the book will enable the reader to understand what is happening today in the world of auditing.

### Profile

Professor Mohammed Shamsa holds a PhD in Accounting from Cairo University (1977). He joined Ahlia University in 2004. Previous roles include dean of the business schools in the universities of Baghdad, Sulaimaniya and Salahuddin (between 1978 and 1985), followed by appointments as Iraq's Director General of the General Authority for Taxes (1985-1991) and Director General of the Iraqi Agricultural Bank (1991-1992). He has supervised and examined doctoral theses and master's students in universities in Iraq, Jordan and Lebanon.

Professor Mohammed has published a wide range of research articles on accounting in Iraqi and international academic journals. He regularly attends conferences in Iraq and worldwide. He has written four books on accounting, the most recent being Contemporary Management Accounting, Accounting and Tax Planning.

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**ISBN number:**

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## Contemporary Management Accounting, Accounting and Tax Planning

### Introduction

The recent economic fluctuations have impacted on the role of general and management accounting and tax accounting in particular, due to factors including

- Increasing economic and trade competition at the global level
- Creative strategies to reduce to reduce costs, maximise revenues and increase profits
- Rapid development in technical capacity and impact on business projects and tax deductibility
- Growth of service sectors such as transportation and communication

Accounting management and tax accounting tools can provide data and inform its analysis which in turn supports management planning to take into account the wider financial and economic situation.

This book deals with accounting planning, financial and accounting forecasting, operation planning budget, financial planning budgets and breakeven point planning for the industrial and commercial projects. It also covers tax deductibility planning; quantitative and qualitative tools and methods; and theories of the financial and tax accounting; and contains helpful examples and cases. It adds value to the Arabic literature on this subject by filling an existing gap and will provide useful information for researchers in the field of accounting and tax planning.

### Profile

Professor Mohammed Shamsa holds a PhD in Accounting from Cairo University (1977). He joined Ahlia University in 2004. Previous roles include dean of the business schools in the universities of Baghdad, Sulaimaniya and Salahuddin (between 1978 and 1985), followed by appointments as Iraq's Director General of the General Authority for Taxes (1985-1991) and Director General of the Iraqi Agricultural Bank (1991-1992). He has supervised and examined doctoral theses and master's students in universities in Iraq, Jordan and Lebanon.

Professor Mohammed has published a wide range of research articles on accounting in Iraqi and international academic journals. He regularly attends conferences in Iraq and worldwide. He has written four books on accounting, the most recent being Contemporary Management Accounting - accounting and tax planning.

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## Tax Accounting and Assets Control Procedures

### Introduction

In modern life, taxation seems like an inescapable monster swallowing earnings and savings alike. Although taxation's origins may be ancient, it is no longer passing fad but a pillar of the financial policies of every modern state and a focus of intense debate between economists and politicians.

While it may be difficult to measure the impact of taxation on our lives, it is an indispensable financial resource for any political system that wants to achieve a combination of economic, social and political objectives.

Taxation has become a new research area due to the pivotal role it plays and this book will be useful for those interested in tax affairs including students and academics specializing in accounting, auditing, political economy; those who work in financial and investment sectors; and state employees working in tax authorities.

This book provides a detailed explanation of the nature of taxation and its theoretical basis; practical examples of the types of tax and the ways they are imposed, calculated and collected; and the implications for company financial statements. Also covered are reasons for the imposition of taxes and related political agenda; the conditions they create; and their potential impact on the behaviour of individuals in society.

### Profile

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## Teaching English Language Semantics Using Advanced Object Orientation Techniques

### Introduction

This book is important for teachers of English as a foreign language; researchers interested in English language teaching; researchers in natural language processing and semantics; and those interested in advancing Object Orientation techniques. It is the first book of its kind to present a new approach of using computer science Object Oriented techniques to develop a methodology for a new intelligent multi-lingual natural language processing technique, which resulted in a system we call SEMANTIC ENGLISH. It shows how simple English sentences and phrases can be generated or validated to be semantically and grammatically correct using Advanced Object Orientation techniques and shows how we can deduce and generate correct semantics. It demonstrates how, by developing enhancements to Object Orientation UML, we can represent and process semantic knowledge. The book will be of special interest to those wishing to advance e-learning techniques for teaching English language and English language translation.

### Profiles

Ms Samia Yousif holds a BSc in Electrical Engineering and MSc in Computing Science (University of Bahrain); CCNA, CCNP, CCDA; and Diploma in Quranic Culture (Kingdom of Bahrain). She has published research papers and conference publications, as well as authoring and reviewing a number of books. As well as Ahlia research awards, she received Bahrain's e-Government Excellence Award (e-Education Award entitled: Object Oriented Techniques for an Intelligent Multi-Purpose English-Arabic Language Dictionary System called TOOT). She has ten years' teaching experience in Computer Science, IT and MIS. She worked on the development of computer systems and professional website applications.

Professor Mansoor Alaali became President of Ahlia University in 2015, after six years as Dean of Students. He joined Ahlia in 2008 after 19 years at the University of Bahrain. He gained a bachelor's degree at University of Teesside (UK), then master's and PhD at University of Aston in Birmingham (UK). A Chartered Engineer of the British Computer Society, he is a member of several academic and professional bodies. His research interest is applied computer science, particularly data mining and semantic approaches to automatic translation. An editor and reviewer for international refereed journals, he has written several books and numerous journal and conference articles; delivered keynote speeches; and is a committee member for local, regional and international conferences.

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We would like in particular to thank Ahlia University's Founding President, Professor Abdulla Al Hawaj, for sparing us time in his busy schedule to support the preparation of the event.

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Ms May Al Saffar deserves a special mention as she was the key behind the Poster Sessions, from creating the final templates used by all, to their printing and setting on site.

Finally, very special further thanks to Ms Catherine Hogan for preparing the design brief and first draft and for dedicating great efforts to collecting the information presented in this Abstract Book.

**Dr María del Mar de Fez Laso**

Dean, College of Graduate Studies and Research  
Chairperson of the Organizing Committee

## RESOURCES

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For further information, please see the following websites:

**College of Graduate Studies and Research:**

<http://www.ahlia.edu.bh/ahlianewcms/college/college-of-graduate-research/>

**Research Forum:**

<http://www.ahlia.edu.bh/fourth-annual-research-forum/>

**RF 2016 Abstract Book:**

[http://www.ahlia.edu.bh/ahlianewcms/wp-content/uploads/2016/05/Abstract\\_Book\\_RF2016.pdf](http://www.ahlia.edu.bh/ahlianewcms/wp-content/uploads/2016/05/Abstract_Book_RF2016.pdf)

ISBN : 978-99958-1-174-7

All slides (PowerPoint) and posters (PDF) are available in the Talks and Poster sections of the Research Forum link (as given above).

For any further queries, about the Research Forum, please contact the College of Graduate Studies and Research

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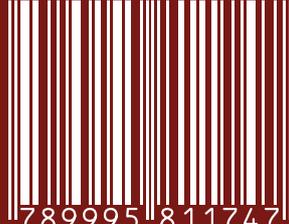
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